

Recently, tourists transformed themselves from a passive audience to active players. Despite the variety of information regarding tourist destination or attraction, tourists are frequently not capable to cope with such a huge volume of choice. The main idea of this book is designing a tourism recommender system aimed at assisting tourists in finding a way-out in the e-tourism "chaos". This system facilitates personal selection and prevents tourists and travelers from being overwhelmed by a stream of superfluous data that are unrelated to their interest, location and knowledge of a place. In tourism domain recommendations may refer to indicate cities to go to, places to visit, attractions to see, events to participate in, road maps, options for hotels, etc. The proposed methodology may be useful to students, professionals in communication and promotion, and particularly to tourism policy-makers since it highlights the fact that the time has changed and the on-line experience has shifted from searching and consuming to creating, connecting and exchanging.

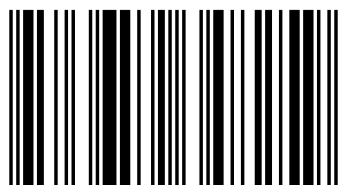


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DESIGN AND DEVELOPMENT OF HYBRID RECOMMENDER SYSTEM FOR TOURISM



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1. INTRODUCTION

Everyone identifies tourism industry as a source for generating numerous positive impacts. Generally, tourism contributes to economic growth and development, promoting global community, international understanding and peace, providing tourism and recreational facilities to local people, improving living standards, stimulating local commerce and industry, reinforcing the preservation of heritage and tradition and so forth. Moreover tourism can contribute for integrating less developed regions or giving them equal access to the fruits of growth. In this respect, one of the major challenges consists of setting up mechanisms to improve competitiveness and quality of tourism at regional and local levels, as well as to ensure sustainable and balanced tourism development at national levels. At the same time, tourism has emerged as a major factor for regional economic development. Regardless the nature, tourism has a major economic and social impact at regional and local levels in the areas where tourism activities take place. So, some regions were highly positively influenced by tourism impacts, like mainly coastal (Emilia-Romagna in Italy), mountainous (Valais in Switzerland), urban and historic (Ile-de-France in France) or regions with exceptional natural resources (Quebec in Canada, Arizona in the United States). Additionally, regions with different profiles can also benefit from the growth of tourism. In this line, they can be rural, promoting green tourism, leisure and nature activities (Queensland in Australia), very remote, (Greenland in Denmark) or regions undergoing industrial restructuring (Nord-Pas-de-Calais in France). The regional development of tourism can trigger general economic growth by creating a new dynamics. It can also contribute to better land use planning by countering rapid urbanisation in developed countries and by attracting populations to new regions where tourism is developing. However, some guidelines for development must be laid down in order to preserve resources, ensure complementarity between areas and define tourism poles (which may not coincide with administrative boundaries). Yet, tourism development in the underdeveloped areas enables development of the periphery, retaining the population in the homeland

and the infrastructure is improved as well as all other activities which contribute to prosperity of the region and the country.

The ground for enhancing all that lies in the quantity of tourists and travelers. Yet, attracting a bigger number of tourists is not a trouble-free process, particularly in times of ever-changing travel preferences. The rapid development of the Internet, particularly in the past two decades, has changed tourism consumer behavior dramatically (Mills and Law, 2004). It had an enormous impact on tourism industry, specifically to the way how tourists search for information. Moreover, the Internet has influenced tourism in significant manner by providing a great variety of services and products on-line (Kabassi, 2010). So, the Web became the leading source of information particularly important in times of increased number of competitors in tourism market. It was detected as the only way-out to be steady-ready to take prompt action. With the increased importance of search in travelers' access to information tourist destinations and businesses were forced to detect more adequate approaches to adapt to the fast-pace change in the environment (Pan *et al*, 2011). This particularly addresses the on-line tourism supply since tourist destinations have a strong need to acquire data for potential and present tourists and travelers. By the mediation of digital environment, what is noticeable is the obvious tourists' transformation from "passive audiences" to "active players" (Prahalad and Ramaswamy, 2000). A noteworthy transformation was made from just passive searching and surfing to creating content, collaborating and connecting. Hence, the development of the Internet empowered the "new" tourists who became knowledgeable and ask exceptional value for their money and time (Buhalis and Law, 2008). In this line, the web-booking systems gain in interest as a direction for detecting differences in the ways that active/passive tourists use the Internet for seeking different kinds of information, booking trips, paying and so forth.

Despite the variety of options regarding tourist destination or attraction, tourists are frequently not capable to cope with such a huge volume of choice. Moreover, they need advice about where to go and what to see. In tourism domain recommendations may refer to indicate cities to go to, places to visit, attractions to

see, events to participate in, travel plans, road maps, options for hotels, air companies, etc. Such scope of work is very often a robust and needs a facilitating factor. Then a recommendation system is introduced with a main aim to assist tourists in finding a way-out in the e-tourism “chaos”. The main idea of the recommendations is to contribute by facilitating personal selection and prevent tourists and travelers from being overwhelmed by a stream of superfluous data that are unrelated to their interest, location and knowledge of a place. So, it is much easier for tourists to access the information they need thus resulting in shorter lead-time for bookings, making last-minute decisions and generally, tailoring their own packages from a suite of options.

So, each country makes efforts and attempts in the line of regional and world promotion as attractive tourist destination. On one hand, tourist destination means temporary location where new travelling experiences may be gained, representing attractiveness of a certain destination (Leiper, 1979). On the other hand, attractiveness may be evaluated in many different ways, such as: from the point of view of emotions, experiences, adventures and satisfaction of tourists (Hu and Ritchie, 1993), with respect to the meaning of tourism attractions and business environment (Enright and Newton, 2004) or, by evaluation of different supporting factors which create tourism supply (Uysal, 1998; Dwyer and Kim, 2003). For instance, initially the concept of tourism competitiveness was related to prices (Dwyer et al, 2000), and later on, econometric models were used for the purpose of ranking (Song and Witt, 2000). Undoubtedly the most comprehensive approach is the one which, beside the competitive advantages, takes into consideration the comparative advantages as significant factors which determine tourism competitiveness of a certain destination (Ritchie et al., 2001). There is a variety of definitions and approaches, none being correct or false, but rather helpful in formulating hypothesis for proving different aspects of tourism destination competitiveness (Mazanec et al., 2007).

Solution is seen in personalization of information delivery to each traveler together with travel history. Yet, advanced tourist information systems must offer

more than just relatively static information about sights and places. The way out is detected in application of recommendation systems as a promising way to differentiate a site from the competitors. So, user-generated content will gain in significance thus enabling development of more accurate recommendation systems.

This study intends to present and elaborate necessity of introducing recommenders in tourism, by emphasizing the case of Macedonia. In order to meet this aim and objective, the research is structured in several parts. So, besides the introductory part, Section 2 is rich in findings regarding problems and challenges of tourism. Section 3 presents an overview of different approaches that refer to tourism recommendation systems. The recommended algorithm is in Section 4, while the methodology in terms of design and implementation of recommendation systems is set in Section 5. The main research outcomes applicable to the evidence on Macedonia are noted in Section 6. Section 7 gives an exploratory approach regarding the necessity of developing tourism recommender in Macedonia. Section 8 is the last section which includes conclusions and future research directions.

Generally, the contribution of this paper lies in the fact that it enriches the poorly-developed empirical academic work within this scientific area in Macedonia. Additionally, the empirical investigation may alarm the relevant tourism-actors in the country that the time has changed and that the on-line experience has shifted from searching and consuming to creating, connecting and exchanging. Previously passive consumers and web surfers are now generating content, collaborating and commentating. So, this research proposes development of national tourism recommendation system only if being prepared in due time, one may struggle the unexpected challenges.